

2001 Survey of Community Drinking Water Systems

- **Consumer Cost**
- **Rate Structures**
- **Infrastructure Conditions**
- **Presence of Irrigation Systems**
- **Conservation Plans**
- **Anticipated Projects**
- **Water Consumption**
- **National Comparisons**

Division of Drinking Water

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Forward

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This report is also available from DDW's web site: <http://drinkingwater.utah.gov>

The web site will contain any corrections or updates made after the initial publication of this document.

The Division of Drinking Water attempts to provide complete and accurate data and information. However, due to the nature of this survey, this cannot be assured and the information herein is provided "as-is".

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Executive Summary

- The average consumer cost of drinking water in Utah is **\$33.89 per month per connection**. This figure includes only user billings and taxes. It does not include impact fees, connection fees or other sources of water supplier revenue.
- The average Utah consumer cost, \$33.89 per month per connection, is comprised of the following: \$28.49 from user billings (84%) and \$5.40 from taxes (16%).
- The unit cost of drinking water in Utah is \$1.39 per 1000 gallons. This figure reflects billings and taxes. It does not include impact fees, connection fees or other sources of water supplier revenue.
- From 1989 to 1995, the increasing cost of drinking water in Utah matched inflationary trends. However, from 1996 on the increase has been greater than the inflationary trend.
- In 2001, Utah's drinking water systems received \$290 million in revenue from billings, taxes, impact fees and connection fees.
- The statewide Median Adjust Gross Income (MAGI) in Utah was \$32,476 per year. The average Utah connection had a culinary water bill of \$33.89 per month, or \$407 per year. Thus, the average yearly culinary water bill amounts to 1.25% of MAGI.
- Most Utah water systems (70%) have a "uniform" rate structure. That is, the unit cost of water remains the same as water use increases.
- 67% of Utah's drinking water systems have a secondary irrigation system (either piped or ditch) available in at least some part of their service area. (The costs associated with irrigation service are not included in this survey.)
- Only 29% of Utah's systems collect significant funds which are held in reserve for future improvements.
- 16% of Utah's systems are currently inadequate, worn out or have significant immediate problems.
- 64% of Utah's systems have submitted water management and conservation plans.
- In the next four years, Utah's water suppliers will spend approximately \$184 million per year on new projects.
- In FY02, state and federal agencies contributed \$41.3 million toward water system projects. This amounts to 22% of the total estimated yearly construction costs (\$184 million).

- Utah's water consumption amounts to 321 gallons per capita per day. This includes consumption outside of a residential setting (e.g. industrial, commercial, institutional). This figure also includes water drawn from not only from drinking water systems but also from secondary (non-potable) irrigation systems.
- In 1999, the American Water Works Association conducted a national survey of over 600 water suppliers. Given Utah's unique climatic conditions, comparing the cost and use of water in Utah with national averages is not entirely appropriate. However, in very general terms, AWWA's data indicates that Utah's monthly water bill (i.e. consumer cost) is about the same as the national average, even though Utah's water use is roughly twice the national average. The reason for this is that the unit cost of water, on a "\$/1000 gallons" basis, is less than half the national average.
- AWWA's 1999 data should be used cautiously. The data appears somewhat incomplete, inconsistent and ambiguous. It further appears that water system income from taxes may be underreported. AWWA will be doing another survey beginning in 2003. In this survey, they intend to correct some of the ambiguities and deficiencies of the 1999 survey.
- If certain corrections are applied, the "average consumer cost" from AWWA's 1999 survey compares favorably with that determined in the 2001 survey. When corrected for inflation and tax revenue, the AWWA survey indicates the average monthly bill in Utah is \$34.62. The 2001 DDW Survey indicated that the average bill was \$33.89. This is approximately a 2% difference.

2001 Survey Report

Introduction

The Utah Division of Drinking Water (DDW), in conjunction with the Utah Division of Water Rights and the Utah Division of Water Resources, annually conducts a survey of the state's community drinking water systems. The results of the 2001 survey are presented herein.

A community drinking water system is defined as a water system which serves at least 15 service connections used by year-round residents, or regularly serves at least 25 year-round residents.

Of the 454 community drinking water systems in the state, 288 responded to the survey. Of these 288, only 248 responded satisfactorily with respect to water bill information. However, these 248 systems represent approximately 83% of the total number of connections served by all community drinking water systems in the state.

Average Consumer Cost (Appendix 1)

For 2001, the average cost of culinary water for consumers was **\$33.89** per month per connection. This figure includes money paid through periodic billings and taxes, but does not include impact fees or connection fees. This is a increase of 12% from the figure reported in 2000 (\$30.13).

The large increase in 2001 requires an explanation. Some of the increase is related to improved data gathering. Better information was obtained on property taxes collected by water suppliers. Discounting this new information, the average water bill for 2001 would have amounted to \$32.84, an increase of 9% over the 2000 figure.

A history of the survey results is shown in Table 1.

It is important to note that the averages shown above are determined from only the income (billings and taxes) reported by community **drinking water** systems. As discussed later in this report, it is estimated that 67 % of Utah's drinking water systems also have irrigation systems (either piped or ditched) serving some or all of their customers. The costs associated with irrigation system service are **not** captured by this survey.

Table 1: Average Consumer Cost (\$/month/connection)	
Year	Avg. Cost (Billings and Taxes)
2001	\$33.89
2000	\$30.13
1999	\$27.77
1998	\$26.28
1997	\$24.47
1996	\$25.12
1995	\$20.88
1994	\$20.41
1993	\$19.57
1992	\$20.53
1991	\$19.16
1990	\$18.89
1989	\$17.03

Appendix 1 presents a listing of all public community drinking water systems in the State, and the water bill information which they provided. Note that this Appendix is broken into five categories: Systems that obtain revenue only from retail billings; Systems that obtain revenue from billings and taxes; Large regional districts that primarily wholesale water; Systems which responded to the survey, but did not provide revenue data; and systems which did not respond to the survey.

As mentioned above, the average consumer cost (from billings and taxes) in 2001 was \$33.89 per month per connection. Of this amount, \$28.49 (84%) came from billings, and \$5.40 (16%) came from taxes.

Consumer Water Cost vs. Inflation (Appendices 1a and 1b)

As can be seen in Table 1, the cost of water in Utah has risen over the years. To help determine whether this is simply a consequence of inflation, comparisons were made to national inflationary indices.

Appendix 1a compares the increasing cost of water in Utah to the rise in the Consumer Price Index (CPI). Appendix 1b compares the increasing cost to the Engineering News Record's

Construction Cost Index (CCI). In both charts, the bottom curve shows what the water bill would be if it followed the inflationary pattern of the particular index.

As can be seen in both charts, from 1989 to 1995 the cost of water was close to the expected inflationary increases. However, from 1996 on, the increase of water costs has been greater than the inflationary trend. This may be partly explained by better data gathering in recent years. However, even taking this into account, it still appears that from 1996 on the increase of water costs has been greater than the inflationary trend.

Revenues Received by Drinking Water Systems (Statewide)

Table 2 summarizes all the revenue received by community water systems from billings, taxes, impact fees and connection fees. The figures shown in this table are extrapolations from the data received. The extrapolations are necessary because data was received for only 83% of the State's connections.

Table 2: Revenues Received by Utah Water Systems In 2001		
Category	Amount	%
From Billings	\$217 million	75%
From Taxes	\$41 million	14%
From Impact Fees	\$21 million	7%
From Connection Fees	\$11 million	4%
TOTAL	\$290 million	100%

Water Bill As A Percent of Median Adjusted Gross Income

The Statewide Median Adjusted Gross Income (MAGI) for 2000 was \$32,476. (At this writing, MAGI data for 2001 are not available.) The average Utah connection had a culinary water bill of \$33.89 per month (from billings and taxes). Thus, the statewide average culinary water cost was 1.25% of MAGI. (Impact fees and connection fees are excluded from this analysis.)

A history of consumer cost as a percent of MAGI is shown in Table 3. The large increase in 2001 is partly due to better data gathering, as explained earlier.

Table 3: Consumer Cost as % of MAGI	
Year	%
2001	1.25%
2000	1.11%
1999	1.09%
1998	1.04%
1997	1.01%
1996	1.13%
1995	1.00%
1994	1.00%
1993	0.94%
1992	1.06%
1991	1.12%

Residential Water Rate Structures (Appendix 2)

208 systems presented adequate information on their residential water rate structures. They are tabulated in Appendix 3.

Rate structures can be characterized by how the expense of water varies with increasing use. Water conservation tends to be encouraged if the water cost increases as more water is used. Rate structures can be characterized as “uniform”, “increasing” or “decreasing”.

Note that the type of rate structure is determined by examining only the pricing trend of overage blocks. The base rate is not considered. Furthermore, a rate structure with only one overage block is considered "uniform".

Presented below are the findings of this year’s survey. For comparison purposes, findings from the 1999 survey are also presented. (1999 was the last time this analysis was performed.) As can be seen, there has been a slight increase in the percent of systems having “increasing cost” rate structures.

Table 4: Types of Rate Structures, 2001 and 1999						
		Year: 2001			Year: 1999	
Residential Rate Structure Type		Number of Systems	% of Systems		Number of Systems	% of Systems
Decreasing Cost		5	2%		8	4%
Uniform Cost		138	66%		164	70%
Increasing Cost		65	31%		61	26%
TOTAL		208	100%		233	100%

\$ per 1,000 Gallons (Appendix 3)

Earlier in this report, the cost of water was characterized by the “average water cost”. This was expressed as “\$ per connection per month”. It was determined by simply adding a system’s billing income and tax income, and then dividing by the number of connections.

While this type of analysis does have value, there are some variables that can confound the results. For instance, climatic conditions may change. If water supplies are ample, the average water bill would tend to go up during a dry, hot year. Conversely, during wet periods, the

average water bill would tend to decrease.

Another way to look at the cost of water is on a “\$ per 1000 gallons” basis. This perspective may be less subject to climatic variables.

Appendix 4 tabulates those systems which provided sufficient information to allow a “\$ per 1000 gallon” determination. Table 5 summarizes the findings. The “Billings and Taxes” figure shown below was determined by extrapolation based on the findings presented in Table 2. Thus, the “Billings Only” figure of \$1.17 was increase by 18.8 % to account for taxes.

Table 5: \$ per 1000 gallons	
Billings Only	\$1.17
Billings and Taxes	\$1.39

On average, Impact Fees and Connections Fees provide approximately 11% of a water supplier’s income. However, these fees are not included in the above analysis because of their “one-time” nature.

Secondary Irrigation Systems (Appendix 4)

Appendix 5 lists those systems which reported they had separate irrigation systems in their service areas.

194 of the 288 systems which returned questionnaires (67%) have secondary irrigation water available in at least some part of their service area. Refer to Appendix 5 for a listing of these systems.

Note that the costs associated with irrigation services are outside the scope of this report.

General Physical and Financial Condition of Water Systems (Appendix 5)

The survey asked water providers to do a self-assessment of the physical and financial conditions of the water systems. Refer to Appendix 6 for detail information in this regard. Some significant findings in the area are noted below.

- a. 5% of water systems are operating in the red. Some of these systems transfer funds from other activities. Others plan to raise rates.
- b. Only 29% of systems collect significant funds which are held in reserve for future improvements.

c.16% of systems are currently inadequate, worn out or have significant immediate problems.

d. 29% of systems rate their ability to provide fire protection water as "fair" or "poor".

e. 1% of distribution systems are in bad shape.

Water Management and Conservation Plans (Appendix 6)

By state law, all water systems serving more than 500 connections must have a water management and conservation plan. Appendix 6 lists those systems which have submitted plans to the Utah Division of Water Resources. The following table summarizes the findings. (Note: The data for this analysis was provided by the Utah Division of Water Resources.)

Table 6: Water Management and Conservation Plans		
Plan Status	Number of Systems	%
Submitted	84	64%
Not Submitted	47	36%
Total	131	100%

Future 4 Year Expenditures For Drinking Water Projects (Appendix 7)

Survey respondents indicated that in the years 2002 through 2005 they would spend a total of \$611 million on drinking water projects. This amounts to an average of \$153 million per year. Appendix 7 provides specific information on anticipated projects.

If the above survey results are extrapolated to the entire state (based on a survey response rate of 83%), project expenditures in the years 2002 through 2005 would total \$736 million. This amounts to an average of \$184 million per year.

The following table indicates a history of anticipated project spending (extrapolated).

Table 7: Anticipated Project Spending		
Survey Year	Future 4 year spending (million)	Avg. per year (million)
01	\$736	\$184
00	\$602	\$151
99	\$569	\$142
98	\$647	\$162
97	\$498	\$125
96	\$261	\$65
95	\$376	\$94
94	\$380	\$95

Future 20 Year Expenditures For Drinking Water Projects (Appendix 7a)

Current data only allows the estimate of project expenditures for the next four years.

However, a crude estimate was made for yearly project expenditures over the next 20 years. That estimate is presented in the chart in Appendix 7a.

To generate this chart, an assumption was made that yearly expenditure on drinking water projects is directly proportional to the state's population growth. In the year 2000, the annual expenditure on drinking water projects amounted to \$68.12 per person. Extrapolating this to the expected population in 2022 indicates that \$240 million will be spent that year on drinking water projects.

Better data on 20-year expenditures will be available at the end of 2003. A survey of 25 Utah water systems will be conducted as part of a national infrastructure needs survey conducted by EPA.

Anticipated Requests for Financial Assistance From State and Federal Agencies in the Next Four Years (Appendix 8)

To finance anticipated projects, some water systems intend to apply for financial assistance from State and Federal agencies. Appendix 8, which is a subset of Appendix 7, indicates the projects which might be funded, in part, by federal or state funds.

In the years 2002 through 2005, water systems responding to the survey indicated that they

intend to apply for a total of \$46 million from federal or state agencies. If the above survey results are extrapolated to the entire state (based on a survey response rate of 83%) intended applications to State and Federal agencies would amount to \$55 million over 4 years, or \$14 million per year.

The following table indicates a history of anticipated State and Federal funding requests.

Table 8: Anticipated Requests for State or Federal Funding Assistance		
Survey Year	4 Year Requests (million)	Avg. per year (million)
01	\$55	\$14
00	\$37	\$9.25
99	\$42	\$10.5
98	\$30	\$7.5
97	\$62	\$15.5
96	\$95	\$23.8
95	Insufficient Data	
94	Insufficient Data	

Actual Funding From State and Federal Agencies

Experience has shown that in this survey water suppliers typically underestimate the amount of funding they will be seeking from State and Federal agencies. This appears to again be the case this year. Table 9 (next page) summarizes the actual funding from governmental agencies in FY02. As can be seen, \$41.3 million was provided in loans and grants. This is considerably more than the anticipated requests shown in Table 9, \$14 million per year.

The data also shows that government agencies provide approximately 22% of the funds for drinking water projects in the state. (Total governmental contribution in FY2001 was \$41.3 million. Total cost of all projects, as indicated in Table 8 above, was estimated to be \$184 million.)

Table 9: Actual State and Federal Funding for Drinking Water Projects, FY02			
Agency	Loans	Grants	TOTAL
Utah Drinking Water Board - State Revolving Fund (Funded)	\$4.2 mil	\$0.9 mil	\$5.1 mil
Utah Drinking Water Board - Federal SRF (Funded)	\$11.4 mil	\$0.2 mil	\$11.6 mil
Utah Board of Water Resources (Funded)	\$5.8 mil	\$0.08 mil	\$5.8 mil
Utah Community Impact Board (Authorized for Funding)	\$5.2 mil	\$3.0 mil	\$8.2 mil
Utah CDBG	-	\$2.3 mil	\$2.3 mil
Rural Development (USDA)	\$4.7 mil	\$3.5 mil	\$8.2 mil
TOTAL	\$31.3 mil	\$10 mil	\$41.3 mil

Water Consumption (Appendix 9)

An attempt was made to determine the average water consumption from Utah's public drinking water systems. Experience has shown, however, that survey data in this regard may not be of the highest quality.

The Division of Water Resources has an ongoing program to determine water consumption. This program includes field verification of data. The results of their program are presented in Appendix 9. We believe this data to be more accurate than the data gathered in the course of this annual survey. Note, however, that the Water Resources data was collected in the period 1992 through 1998.

Before continuing, it would be helpful to consider the nature of water supply in Utah. Utah is somewhat unusual in that many consumers obtain water both from a drinking water system and

an irrigation system (either piped or ditch). As noted previously in this report, it is estimated that 67% of Utah's drinking water systems also have a separate (non-potable) irrigation system within their service areas. This is not common in most states. When considering water consumption in Utah, this must be taken into account.

As can be seen in Appendix 9, the average per capita consumption for a **residential** connection is 169 gallons per capita per day from drinking water systems, and 44 gallons per capita per day from non-potable irrigation systems. This amounts to 213 gallons per capita per day (gpcd). Assuming 3.13 people per household, this amounts to 667 gallons per day per residential connection (20,000 gallons per month per or 240,000 gallons per year.)

It is also informative to consider how much of residential use is devoted to indoor use versus outdoor use. The Division of Water Resources reports that indoor water use is approximately 70 gpcd. If total use is assumed to be 213 gpcd, this means that 33% of residential water use is for indoor purposes, and 67% is for outdoor purposes.

Heretofore, we have presented information on residential water use. However, in a community there are often other locations where water may be used. They are broadly classified as follows:

- Commercial – small business operations (e.g. retail businesses, restaurants and hotels)
- Institutional – various public agencies and institutions such as parks, cemeteries, recreational areas and golf courses
- Industrial – manufacturing facilities

Individuals in a community consume water at their residences. However, they also consume water at the facilities described above. On a per capita basis, this “total” water consumption from all connection types will be higher than purely residential consumption.

As seen in Appendix 9, the average water consumption via **all** connections amounts to 262 gpcd from drinking water systems, and 59 gpcd from non-potable irrigation systems. This totals 321 gpcd. Studies by the Division of Water Resources indicate that, when considering all connections, 50% of use is indoor and 50% is outdoor.

The above findings are summarized in Table 10 (next page).

Table 10: Utah Water Consumption, Drinking Water and Secondary Irrigation Water				
Use	Gallons per Capita per Day	Multiplier	Daily Connection Use	Yearly Connection Use
Residential Use	213 gpcd	3.13 people per residential connection	667 gallons per residential connection	240,000 gallons per residential connection
Use From All Connection Types ("Total" Connections)	321 gpcd	2.87 people per "total" connection (1)	921 gallons per "total" connection	336,263 gallons per "total" connection
Footnote 1: DDW's database indicates that, statewide, the ratio between residential connections and total connections is 1.09. That is, for every residential connection there are 1.09 total connections. Since the population is considered constant, the number of people per "total connection" is proportionally less . . . i.e. $3.13 / 1.09 = 2.87$.				

A Discussion of Typical Revenue Sources and Expenses

In the next section, we will attempt to compare the cost of drinking water in Utah with reported national costs. However, before doing this it may be helpful to review what elements contribute to the cost of water.

The goal of any water system is to have a balanced budget. For-profit systems are also interested in making a profit for their investors. To that end, the yearly income of a water system should equal or exceed the system's expenditures.

Typical system expenditures are shown in Table 11.

To offset expenditures, water systems rely on a variety of income sources. Table 12, taken from a US Government Accounting Office (GAO) publication, provides a listing of the possible income sources for water utilities. This table also shows the percentage of utilities which utilized a particular funding source in their most recently completed fiscal year.

Table 11 – Typical Water System Expenses (1)	
Operation And Maintenance	
	Source of supply
	Pumping
	Water Treatment
	Transmission and Distribution
	Customer Accounting
	Administrative and General
Capital Requirements	
	Debt Service
	Debt Service Reserve
	Capital Improvements
(1) American Water Works Association, <i>Water Rates (Manual M1)</i> , (2002), Table 1-1 (adapted)	

Table 12 - Estimated Percentages of Utilities That Used Each Source of Funding in Their Most Recently Completed Fiscal Year (1)		
<i>1</i>	User charges	98%
	Other local revenues	
<i>2</i>	Hook-up, connection or tap fees	89%
<i>3</i>	Interest earned	77%
<i>4</i>	Sales to other utilities	42%
<i>5</i>	Permit and inspection fees	41%
<i>6</i>	Reserves	35%
<i>7</i>	Assessments	14%
<i>8</i>	Property taxes	8%
<i>9</i>	Special operating cost levies	3%
	Grants	
<i>10</i>	State grants	21%
<i>11</i>	Federal grants	16%
	Debt and Equity	
<i>12</i>	Revenue Bonds	36%
<i>13</i>	State loans	25%
<i>14</i>	General Obligation Bonds	19%
<i>15</i>	Federal loans	12%
<i>16</i>	Commercial loans	9%
<i>17</i>	Private activity bonds	2%
<i>18</i>	Sale of stock	2%
(1) United States General Accounting Office, <i>Water Infrastructure – Information on Financing, Capital Planning, and Privatization</i> , (GAO-02-764, 2002), Table 1		

The historic goal of DDW’s survey is to determine the “consumer cost” of drinking water in Utah. This is viewed as the cost borne by consumers through periodic billings and yearly property taxes. Thus the “average consumer cost” reported in this survey at \$33.89 per month per connection reflects only Items 1 and 8 in Table 12.

Data on Connection Fees and Impact Fees, which can be ascribed to Item 2 in Table 12, are collected in the DDW survey but **not** included in the reported \$33.89 per month per connection. Furthermore, Item 4, “Sales to Other Utilities” (i.e. Wholesale Income) is not directly included in

DDW's survey. It is assumed that wholesale costs are reflected in water sales data provided by retailers.

Also, in theory, a portion of the "consumer cost" could be ascribed to a water system's profit margin and, thus, the "consumer cost" would not accurately reflect the actual cost of water supply. However, in Utah the vast majority of community water systems are not-for-profit, and this will not be a confounding factor.

When reviewing any information on the "cost" of water, the reader should be aware of what elements go into the number.

AWWA's 1999 National Study of Water Cost and Usage (Appendix 10)

In this section we will attempt to compare Utah's water cost and use with the rest of the country.

There are two prominent national studies of water costs. One of these is conducted by Raftelis Financial Consulting (www.raftelis.com) and the other is conducted by the American Water Works Association (AWWA). Both of these surveys also capture water usage data.

As part of the 1999 DDW Survey report, the Raftelis survey was examined. For this 2001 report, an attempt was made to compare DDW survey findings with AWWA data.

The most recent data available from AWWA is the 1999 Financial/Revenue Survey, which is part of AWWA's WaterStats database. In this study 671 systems were surveyed across the country.

As we worked with AWWA's survey, we noted the following:

- There is no summary report associated with the AWWA study. There are no conclusions as to the average water bill, or the average consumption, across the country or in any region. Thus, it was incumbent on staff from the Division of Water Resources and the Division of Drinking Water to analyze the data and draw conclusions from it. Those conclusions are presented in Appendix 10.
- The data appears somewhat incomplete, inconsistent and ambiguous. AWWA acknowledges there are some weaknesses in the survey. They intend to correct those weaknesses when they conduct their next survey. Data for the next survey will be gathered during 2003 and their findings will be released in 2004.
- Tax revenues may be underreported in the AWWA survey. As indicated in Table 13, above, it is believed that 8% of the nation's water utilities use property taxes. However, in the AWWA survey only about 1% reported tax income.
- AWWA surveyed 10 systems in Utah. 1 system did not respond. Of the 9 that did, only

1 collects taxes. However, that tax income is not reflected in Appendix 10. Thus, the Utah water costs are likely higher than that shown in Appendix 10.

Because of the above concerns, care must be exercised when drawing conclusions from AWWA's 1999 survey. The data, however, indicates the following:

- Utah's **residential** water use (18,516 gal/mo) use was 22% higher than the average of 8 western states (15,145 gal/mo), and 97% higher than the national average (9,413 gal/mo).

It should be noted that the AWWA study did not take into account any non-potable, irrigation water used by residences (delivered by "secondary" water systems). Including this would tend to increase Utah's consumption relative to the region and the nation. This is because approximately 67% of Utah's community water systems also have a secondary irrigation system (piped or ditch) in at least part of their service areas.

- Looking at the cost of water on a "\$ per month per connection" basis, Utah's consumer cost (\$27.38 per month per connection) was 69% of the western average, and 84% of the national average. (Note: This is for all connections . . . residential, commercial, institutional, industrial, etc. Furthermore, this figure reflects billings only, and does not reflect other sources of water system revenue such as taxes.)
- On a "\$/1000 gallon" basis, Utah's consumer cost (\$1.11 per 1000 gal) was 58% of the Western State average and 41% of the national average
- Given Utah's unique climatic conditions, comparing the cost of water in Utah with national averages is not entirely appropriate. However, in very general terms, AWWA's data indicates that Utah's monthly water bill (i.e. consumer cost) is about the same as the national average, even though our water use is roughly twice the national average. The reason for this is that the cost of water, on a \$/1000 gal basis, is approximately half the national average.

How Does DDW's Current Study Compare With AWWA's 1999 Study?

The previous section lists conclusions from the 1999 AWWA survey. This section provides a comparison of the 1999 AWWA study and the 2001 DDW survey. In order to compare the two studies, it is necessary to make certain adjustments to AWWA's data.

As seen in Appendix 10, the AWWA data indicates that in 1999 the average "combined" water bill in Utah (i.e. representing all connections types, not just residential connections) was \$27.38. It is necessary to adjust this figure for inflation. Thus, \$27.38 becomes \$29.10 in 2001 dollars.

Another adjustment is necessary because the average consumer cost for Utah, as reflected in Appendix 10, apparently does not include property taxes. Thus, the \$29.10 figure must be further increased to account for this.

As indicated earlier in this report, the average consumer in Utah pays 84% of their water bill through user billings and 16% through taxes. Thus, if it is assumed that the \$29.10 in the AWWA survey reflects only user billings, as appears to be the case, this figure must be proportionally increased to reflect billings **and** taxes. Adjusting the AWWA average accordingly results in a consumer cost of \$34.62 in 2001 dollars.

The 2001 DDW survey placed the average consumer cost (billing and taxes) at \$33.89. When adjusted for inflation and tax revenues the 1999 AWWA survey yields an average water bill of \$34.62. This is only a 2% difference, which is good agreement.

With respect water cost expressed as “\$/1000 gallons”, we again have good agreement. The AWWA study indicated \$1.11 per 1000 gallons. This becomes \$1.40 per 1000 gallons when adjusted for inflation and taxes. DDW’s study concluded \$1.39 per 1000 gallons.

Thus, with respect to water cost, there appears to be good agreement between the AWWA study and DDW’s study. However, it is important to note that this agreement occurs only after the AWWA numbers are adjusted to reflect taxes. This tends to confirm that taxes are underreported in the AWWA survey.

With respect to water consumption, the AWWA study concluded that **residential** use in Utah was 18,516 gallons per month per connection.

As shown in Appendix 9, the Utah Division of Water Resources (DWR) reports that residential use in Utah is 169 gallons per person per day from drinking water systems, and 44 gallons per person per day from non-potable systems. Assuming 3.13 people per residential connection, DDR data amounts to 15,869 gallons per connection per month from drinking water systems, and an additional 4,132 gallons per month from non-potable systems.

We assume that non-potable residential water use was not considered in the AWWA study. If this is the case, it appears that the 9 Utah systems selected for AWWA’s study overstate potable water consumption. They indicate a statewide consumption of 18, 516 gallons per month per connection, while DWR data indicates 15,869.